from being "emaciated." During the period mentioned she has lived chiefly on milk, other food aggravating the above-mentioned troubles. There has, however, been almost complete anorexia.

Symptoms on admission. Great weakness and lassitude, shortness of breath, palpitation of the heart and præcordial oppression, with dull, aching pain in the epigastrium. Constriction of the waist, as by corsets, insupportable; cannot partake of solid food; but eggs, milk, and water cause little or no distress. A distinct systolic murmur, loudest at the apex, was heard and considered too harsh to be merely hæmic.

I took charge of the ward containing this patient on February 1, 1897, up to which time the blood had not been examined. The intense lemon-tinted pallor was highly suggestive of pernicious anæmia, and this diagnosis was confirmed by the first blood count, which was made on February 12th.

Number of red cells, 1,050,000 per c.mm.—21 per cent.; hæmoglobin, 25 per cent.; marked poikilocytosis. No estimate of the white cells, either absolute or relative, is recorded in the ward notes.

From this time until the patient's death, on June 23, 1897, the following counts were made:

March 15, 1897. Number of red corpuscles, 500,000; number of white cells, 5200; Hb., 19 per cent.

April 19*th*. Number of red corpuscles, 560,000; Hb., 14 per cent.

May 11*th*. Number of red corpuscles, 938,000; Hb., 36 per cent.; white cells, 3000.

June 18*th*. Number of red corpuscles, 375,000; Hb., 18 per cent.

The eye-ground was examined by Dr. Charles A. Oliver, who reported several hemorrhages scattered over the retina, the larger ones near the periphery.

From the voluminous ward notes of this case it appears that there was marked improvement as regards the digestive disturbances, with, however, occasional inexplicable attacks of diarrhœa and vomiting.

On February 19th the patient began to complain of a tingling sensation and numbness in feet and hands, and on March 3d these pains are recorded as being so severe as to elicit cries of pain.

The following note was made on March 15th: For several days the patient has been complaining of neuralgic pains in the feet and hands, and extending up the arms along the nerve trunks, with gradually increasing weakness and numbness, until to-day there is complete paralysis of extensors of hand and the same condition of those of the feet. She is unable to hold any object with either hand. Fowler's solution, which had been administered in doses of 10–20 drops for three weeks, stopped, the arsenic being regarded as a possible cause of the paralysis. Opposed to the hypothesis of arsenical neuritis is the fact that no gastro-intestinal disturbance had been excited by the drug (on the contrary, that previously existing had subsided) or any œdema of the face. The patient at this date declared herself better, except as regards the neuritis, than for six weeks previously. Her statements are, however, unreliable, her mind being readily open to suggestions. The blood count at this date showed but 10 per cent. of red corpuscles.

April 23*d*. At this date a condition of slight general anasarca was noted, the face being œdematous, especially on the side on which the patient lay, and the hand hanging over the bed on the same side being decidedly swollen.

lution of the red blood-corpuscles. Now, if the hæmoglobin is estimated during one of these periods of exacerbation, its percentage will, as a matter of course, be higher than previously or subsequently, since the more highly-colored plasma contributes to its elevation. This is a point to which, as far as I am aware, attention has not hitherto been directed.

In conclusion, I would reiterate the theory announced by me in 1886,[1] and quoted with approval by the late Prof. Harrison Allen at the third Triennial Congress of American Physicians and Surgeons,[2] that the red blood corpuscles in pernicious anæmia show marked signs of reversion to the type of blood which is normal in the cold-blooded animals. This theory might be regarded as fanciful if it were based upon a resemblance of the blood of pernicious anæmia to that of the cold-blooded animals (frogs and eels) in any one particular, but the fact is that the red corpuscles of pernicious anæmia resemble those of the said animals in their number, their size, their shape, and the amount of hæmoglobin they carry. In well-marked cases of pernicious anæmia we observe (1) a reduction of the number of the red corpuscles to a degree that is normal in the cold-blooded animals. It is the rule to find in this disease, when well advanced, less than 1,000,000 corpuscles per c.mm. Figures like these are normal in the cold-blooded animals. (2) In pernicious anæmia many of the corpuscles are much increased in size, so much so that they have received the name of megalocytes. Many of them are quite as large as the corpuscles of the lizard and eel. (3) They often show a tendency to assume an oval outline, which is that of the corpuscles of the cold-blooded animals. And (4), finally, to make the resemblance complete, nucleated red corpuscles are commonly present in the blood of pernicious anæmia.

Dr. C. S. Engel,[3] of Berlin, has recently discussed the question whether pernicious anæmia is an example of reversion to the fœtal mode of blood development, and, after an elaborate and minute comparison of fœtal blood in all its stages with the blood of pernicious anæmia, he decides it in the affirmative. Such observations tend to support the view just advanced, for, according to all analogy, the blood-corpuscles of the human embryo in their various stages of development should correspond with those of adult animals on lower planes of evolution.

[1] Philadelphia Medical Times, April 3, 1886.

[2] Trans. of the Congress of Am. Phys. and Surg., vol. iii. p. 9. "Morphology as a Factor in the Study of Disease."

[3] Virchow's Archiv, Band cliii., S. 537.